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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/575,052

04/02/2007

Malcolm Lambert

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DELPHI TECHNOLOGIES, INC
M/C 480-410-202
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EXAMINER

JONAITIS, JUSTIN M

ART UNIT

PAPER NUMBER

3752

MAIL DATE

DELIVERY MODE

11/15/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/575,052	Applicant(s) LAMBERT ET AL.	
	Examiner JUSTIN JONAITIS	Art Unit 3752	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 August 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11/10/2009 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9/22/2010 has been entered.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 3-4 , 12 rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent #4,153,205 to Parrish, Jr.

The figure below is reproduced from the Parrish reference in order to show examiner's interpretation.

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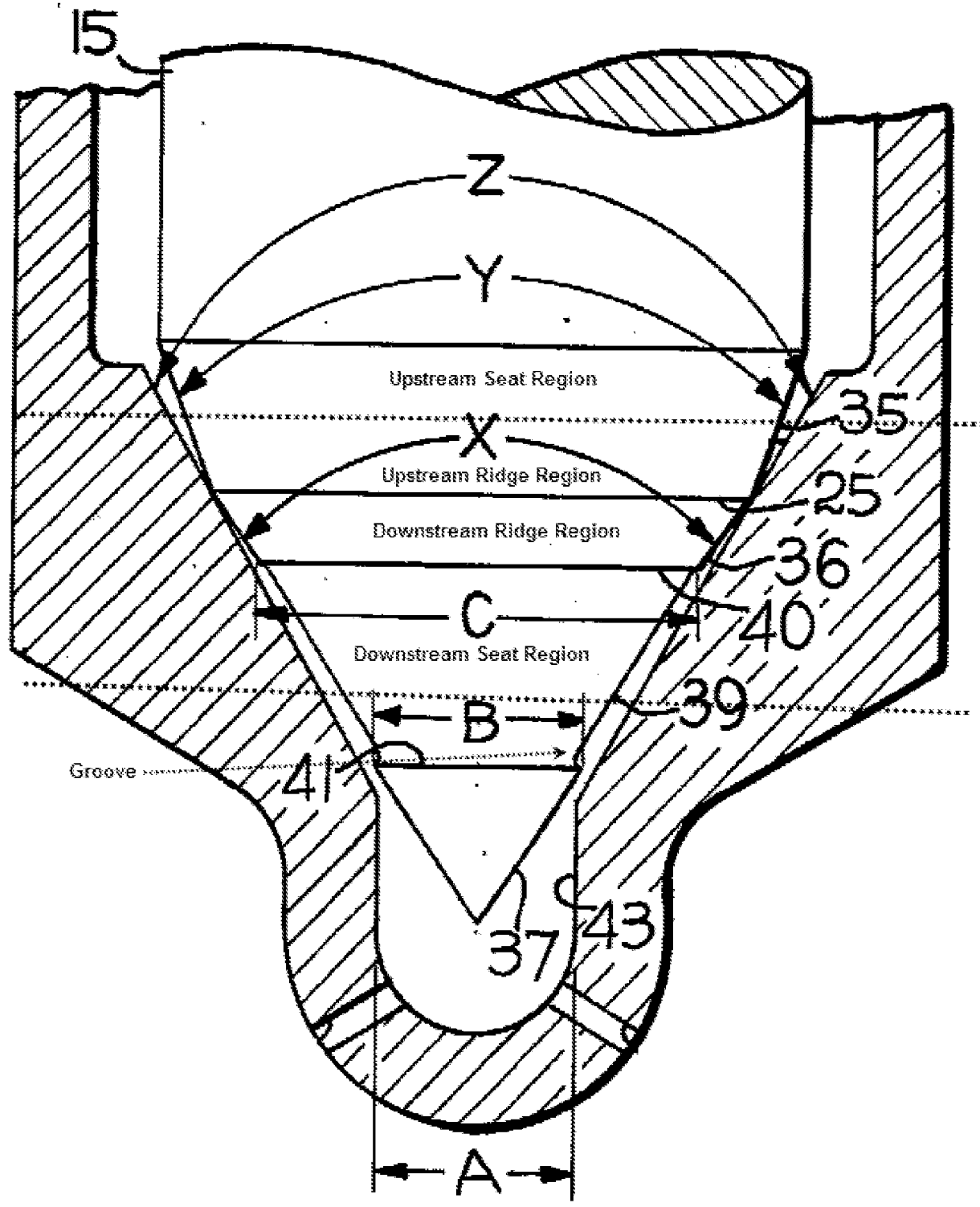


Figure 3 of U.S. Patent #4,153,205 reproduced with examiner's interpretation

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Parrish, Jr. Discloses an Sac-type injection nozzle [column 3, lines 50-52] for an internal combustion engine, the injection nozzle comprising a nozzle body (1) provided with a bore (chamber (24)) defining a valve seating surface (cone surface (49)) having a seat cone angle (Angle Z), a valve member (valve (15)) which is moveable within the bore. The valve member including an upstream seat region (the top half of upper conical surface (25), See Figure above for further clarity of examiner's interpretation) defines an upstream cone angle (Angle Y), the upstream cone angle and the seat cone angle together defining an upstream differential angle between them.

The valve member further including a downstream seat region (the top portion of groove region (39), See Figure above for further clarity of examiner's interpretation) which defines a downstream cone angle that with the seat cone angle defines a downstream differential angle between them. The valve member also includes an annular ridge (defined by the bottom half of upper conical surface (35) and lower conical surface (36)) protruding from the downstream seat region, integral to the upstream ridge region, disposed immediately downstream of the upstream seat region, and immediately upstream of the downstream ridge region. The protruding annular ridge includes an upstream ridge region (Bottom half of the Upper Conical Surface (35), See the Figure above for clarity of examiner's interpretation) and an adjacent downstream ridge region (Lower Conical Surface (36)). The protruding annular ridge defining a seating line (valve seat seal (25)) at the intersection of the upstream and downstream ridge regions. [column 3, lines 39-43] The seating line including a seat diameter and being engageable with the valve seating surface to control fuel injection from the nozzle body.

The valve member further including a circumferential groove (lower portion of groove region (39), See the figure above for further clarity of examiner's interpretation) arranged

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downstream of the downstream ridge region and immediately upstream of a further region (conical surface (37)), wherein a lower edge of the circumferential groove and the further region define an intersection which defines, together with the seating surface, a radial clearance that is sufficiently small so that a lower portion of the downstream ridge region defines a load bearing surface for the valve member.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 5-11 rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent #4,153,205 to Parrish, Jr.

Parrish discloses the invention as described above including the region adjacent to the protruding ridge on the downstream side of the seating line being a valve tip region and the valve tip region including a chamfered tip (the tip portion of the valve is beveled due to the groove). Parrish however fails to disclose the specific dimensioning of components (the radial

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clearance of the valve and the upstream differential angle vs. the downstream differential angle) necessary to provide the various desired seating of the valve with the seating surface.

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to select the appropriate dimensions of components in order to produce the desired seating arrangement of the valve needle in the valve seat, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art.

Response to Arguments

7. Applicant's arguments with respect to claims 1, & 3-12 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JUSTIN JONAITIS whose telephone number is (571)270-5150. The examiner can normally be reached on Monday - Thurs 6:30am - 5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Len Tran can be reached on (571)272-1184. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/JUSTIN JONAITIS/

Examiner, Art Unit 3752

11-10-2010

/Len Tran/

Supervisory Patent Examiner, Art Unit 3752